## REMARKS/ARGUMENTS

I. Summary of Examiner's Office Action

The Examiner rejected claims 1-3, 5-8, 12-14, and 16-19 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement with respect to powering the actuator to complete an unlocking stroke. The Examiner also rejected claims 1-3, 5-8, 12-14, and 16-19 under 35 U.S.C. §112, second paragraph, as indefinite, citing a lack of support for both locking and unlocking the actuator using power, as well as insufficient antecedent bases for the limitations "power" and "stalled current".

The Examiner rejected claims 12 and 13 under 35 U.S.C. §102(b) as being anticipated by Beran et al. U.S. Patent No. 5,913,763 ("Beran et al."). The Examiner also rejected claims 1-3, 5, 14, and 16 under 35 U.S.C. §103(a) as being unpatentable over Beran et al. The Examiner further rejected Claims 6-8 and 17-19 under 35 U.S.C. §103(a) as being unpatentable over Beran et al. in further view of Moh et al. U.S. Patent No. 5,382,890 ("Moh et al.").

## II. Amendments to the Claims

Claims 1-22 are pending in this case, with claims 1, 6, 12, and 17 having been currently amended. Claims 4, 9-11, 15, and 20-22 have been withdrawn from consideration.

### A. Amendments and Applicant's Reply in Response to Examiner's Rejection of Claims 1-3, 5-8, 12-14, and 16-19 under 35 U.S.C. §112, First Paragraph

The Examiner has rejected claims 1-3, 5-8, 12-14, and 16-19 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Specifically, the Examiner asserted that there is neither an adequate description nor enabling disclosure as to how and in what manner "powering the actuator" provides for both locking and unlocking of the actuator. Applicant respectfully traverses the rejection.

As cited by the Examiner, at least at page 3, lines 9+ and page 8, lines 10+ the specification discloses that power is supplied to the actuator to retract the actuator to a locked position. The power needed to accomplish this action is supplied by an outside source, *i.e.*, by the aircraft within which the actuator is disposed (see specification page 6, lines 19-21).

In order to extend the actuator to an unlocked position, the necessary power is supplied by the electrical and/or mechanical energy storage means which are a part of the actuator itself. Even though the power required to complete the unlocking stroke is supplied from within the actuator, the action still may be appropriately referred to as "powering the actuator", and it is set forth as such throughout the specification. See, for example, page 11, lines 28-31, which states, "[o]nce aircraft power is removed from the flight lock actuator, the stored energy is used to power an extension stroke to the unlocked position." See also page 8, line 33 - page 9, line 2 ("After removal of aircraft DC power, power for motor 20 and for motor controller 130 during the extension stroke is provided by capacitor C through diode D3") and page 3, lines 4-7 (the mechanical and electrical energy storage systems "store sufficient energy for extending the actuator to its unlocked position after the removal of aircraft power.")

Additionally, independent claims 1 and 12, from which all of the other pending claims depend, have been amended as set forth above. As currently amended, claims 1 and 12 more particularly point out the difference between the

powered locking stroke of the actuator, during which energy is stored, and powering the actuator to complete the unlocking stroke, using such stored energy.

Accordingly, at least for the reasons set forth above, Applicant respectfully asserts that claims 1-3, 5-8, 12-14, and 16-19 comply with the enablement requirement of 35 U.S.C. §112, first paragraph. Applicant therefore requests that the Examiner's rejection under 35 U.S.C. §112, first paragraph be withdrawn.

B. Amendments and Applicant's Reply in Response to Examiner's Rejection of Claims 1-3, 5-8, 12-14, and 16-19 under 35 U.S.C. §112, Second Paragraph

The Examiner has rejected claims 1-3, 5-8, 12-14, and 16-19 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Specifically, the Examiner asserted that the metes and bounds of the claims cannot be determined due to lack of support for locking and unlocking the actuator by powering the actuator, and that there are insufficient antecedent bases for the limitations "power" and "stalled current" in the claims. Applicant respectfully traverses the rejection.

Regarding the Examiner's assertion that there is no support for both locking and unlocking the actuator by powering the actuator, Applicant refers to its remarks set forth in Section A above. The Examiner has acknowledged that the specification supports powering the actuator in order to lock it, and Applicant has pointed out where the specification teaches how energy stored in the mechanical and electrical energy storage means powers the actuator in order to unlock it.

Applicant thus turns to the Examiner's assertion that there is insufficient antecedent basis in the claims for the limitations "power" and "stalled current". Any objections the Examiner may have regarding Applicant's use of the word "power" in claims 1 and 12, as well as being addressed above, are overcome by Applicant's amendments to those claims. Claims 1 and 12, as amended, make the meaning of the words "power", "powered", and "powering" clear in each instance they are used, and leave no confusion as to the antecedent bases for such uses, both in the specification and in the claims.

The antecedent basis for the limitation "stall current", as it appeared in claims 1 and 12 prior to the current amendment, can be found, *inter alia*, on page 10,

lines 2-10 of the specification. There, Applicant teaches that "[i]f current limit circuitry 160 senses that the current passing through motor 20 is higher than a predetermined value that indicates motor 20 is in a state of powered stall," the available voltage may be reduced to avoid overheating the motor. "Stall current" refers to the current supplied to the actuator's motor while it is in a state of powered stall. However, to ensure that the meaning of the term is clear, both in the claims themselves and in relation to the way it is set forth in the specification, claims 1 and 12 have been amended above. Instead of reciting "controlling . . . a stall current of the actuator", the claims now teach "controlling a current supplied to the actuator while the actuator is in said state of powered stall." The fact that, in claim 12, the term "stall current" first appeared without the article "a" preceding it has become moot in light of the above-referenced amendments.

Accordingly, at least for the reasons set forth above, Applicant respectfully asserts that claims 1-3, 5-8, 12-14, and 16-19 are definite pursuant to 35 U.S.C. §112, second paragraph. Applicant therefore requests that the

Examiner's rejection under 35 U.S.C. §112, second paragraph be withdrawn.

III. Applicant's Reply to the Examiner's Rejection of Claims 12 and 13 under 35 U.S.C. §102(b)

The Examiner has rejected claims 12 and 13 under 35 U.S.C. §102(b) as being anticipated by Beran et al. Applicant respectfully traverses the rejection.

According to the Examiner, (a) Applicant's "means for mechanical storage means" reads on Beran et al.'s return spring; (b) Applicant's "electrical storage means" reads on Beran et al.'s battery module; (c) Applicant's "means for powering the actuator" reads on Beran et al.'s electric motor; and (d) Applicant's "means for controlling the linear velocity and stall current of the actuator" reads on Beran et al.'s controller. These four statements employ overly simplified versions of a number of the elements of Applicant's invention, as they are set forth in claim 12 of the application.

The system described in claim 12, as currently amended, comprises (a) "means for storing energy provided to the actuator *during a powered locking stroke of the actuator* in a mechanical energy storage means" (not simply "means for mechanical storage means") and (b) "means for

storing energy provided to the actuator, *during a powered locking stroke of the actuator* and while the actuator is in a state of powered stall in a locked position, in an electrical storage means" (not simply "electrical storage means")(emphasis added). These differences are significant in light of the next element comprising Applicant's claim 12, namely, (c) "means for powering the actuator *using the energy stored* in the mechanical energy storage means *to complete an unlocking stroke;* means for powering the actuator *using the energy stored* in the electrical energy storage means *to complete the unlocking stroke*, in the event that the energy stored in the mechanical energy storage means does not successfully power the actuator to complete the unlocking stroke" (emphasis added).

The Examiner has reduced element (c) of Applicant's invention to "means for powering the actuator", and equated it with an electric motor. While an electric motor may be employed to power the locking stroke described in elements (a) and (b) above, element (c) plainly states that the unlocking stroke is powered by the energy stored during the locking stroke. Furthermore, element (c) of claim 12 makes it clear that Applicant's system includes a first means for powering the actuator's unlocking stroke, using the

mechanically stored energy, and a second, alternative means for powering the actuator's unlocking stroke, using the electrically stored energy. Beran et al. does not teach, claim, or even suggest alternative mechanical and electrical means for powering its apparatus during one directional operation, both different from the means for powering its apparatus during another, distinct, completely opposite directional operation.

The Examiner also pointed out that the Applicant's claims include a statement of intended or desired use, *i.e.*, "for providing improved reliability in an aircraft door flight lock actuator". However, regardless of any intended use of the present invention, Beran et al. does not teach, claim or even suggest Applicant's claimed means for powering the unlocking stroke of an actuator using energy that was stored mechanically, or, alternatively, electrically, during the actuator's otherwise powered locking stroke. Accordingly, at least for the reasons set forth above, Applicant respectfully asserts that independent claim 12 is not anticipated by Beran et al. under 35 U.S.C. §102(b). Moreover, dependent claim 13 depends directly from claim 12, and therefore includes all limitations thereof. Applicant therefore requests that the

Examiner's 35 U.S.C. §102(b) rejection be withdrawn and that claims 12 and 13 be allowed.

IV. Applicant's Reply to the Examiner's Rejection of Claims 1 and 2 under 35 U.S.C. §103(a)

The Examiner has rejected claims 1 and 2 under 35 U.S.C. §103(a) as being unpatentable over Beran et al. Applicant respectfully traverses the rejection.

Included in the Examiner's summary of the relevant elements of the Beran et al. actuator are "a mechanical energy storage means, i.e., return spring 91, for resiliently urging the follower member to move in one, predetermined linear direction" and "an electrical energy storage means, i.e., battery module 109, configured to store electrical energy provided to the linear actuator during powering of the motor to produce motion of the follower member opposite the one linear direction". Basically, in Beran et al., the energy stored in the return spring urges a door to close, while the energy stored in the battery module urges the door to open - the two types of stored energy produce opposing forces.

As taught in claim 1 of the present application, Applicant's method includes powering an actuator to complete its unlocking stroke using energy previously

stored in a mechanical energy storage means, or, alternatively, using energy stored in an electrical energy storage means. As opposed to Beran et al., Applicant teaches that the two types of stored energy produce forces work, as alternatives to one another, toward a common goal.

Beran et al. does not teach, claim or even suggest Applicant's claimed steps of powering the unlocking stroke of an actuator using energy that was stored mechanically, or, alternatively, electrically, during the actuator's otherwise powered locking stroke. Accordingly, at least for the reasons set forth above, Applicant respectfully asserts that independent claim 1 is patentable over Beran et al. under 35 U.S.C. §103(a). Moreover, dependent claim 2 depends directly from claim 1, and therefore includes all limitations thereof. Applicant therefore requests that the Examiner's 35 U.S.C. §103(a) rejection be withdrawn and that claims 1 and 2 be allowed.

## V. Applicant's Reply to the Examiner's Rejection of Claims 3 and 5 under 35 U.S.C. §103(a)

The Examiner has rejected claims 3 and 5 under 35 U.S.C. §103(a) as being unpatentable over Beran et al. Applicant respectfully traverses the rejection.

The rejection of claim 3 is based upon the Examiner's assertion that it would have been obvious to one having ordinary skill in the art to modify the method disclosed in Beran et al. by replacing the battery with a capacitor. The rejection of claim 5 is based upon the Examiner's assertion that it would have been obvious to one having ordinary skill in the art to modify the method disclosed in Beran et al. by making the mechanical storage means and the electrical storage means redundant.

Claims 3 and 5 both depend from claim 1, and therefore include all limitations thereof. Claim 1, at least for the reasons described above, is patentable over Beran et al. Accordingly, at least for those reasons, and despite any well-known principles in the art regarding the functions of batteries and capacitors or the use of redundant energy storage means, Applicant respectfully asserts that claims 3 and 5 are patentable over Beran et al. under 35 U.S.C. §103(a). Applicant therefore requests that the Examiner's 35 U.S.C. §103(a) rejection be withdrawn and that claims 3 and 5 be allowed.

VI. Applicant's Reply to the Examiner's Rejection of Claims 14 and 16 under 35 U.S.C. §103(a)

The Examiner has rejected claims 14 and 16 under 35 U.S.C. §103(a) as being unpatentable over Beran et al. Applicant respectfully traverses the rejection.

The Examiner's rejections of claims 14 and 16 are based upon the same assertions, set forth above, that it would have been obvious to modify the apparatus disclosed in Beran et al. by replacing the battery with a capacitor and making the mechanical storage means and the electrical storage means redundant.

Claims 14 and 16 both depend from claim 12, and therefore include all limitations thereof. Claim 12, at least for the reasons described previously, is not anticipated by Beran et al. Accordingly, at least for those reasons, and despite any well-known principles in the art regarding the functions of batteries and capacitors or the use of redundant energy storage means, Applicant respectfully asserts that claims 14 and 16 are patentable over Beran et al. under 35 U.S.C. §103(a). Applicant therefore requests that the Examiner's 35 U.S.C. §103(a) rejection be withdrawn and that claims 14 and 16 be allowed.

VII. Applicant's Reply to the Examiner's Rejection of Claims 6-8 under 35 U.S.C. §103(a)

The Examiner has rejected claims 6-8 under 35 U.S.C. §103(a) as being unpatentable over Beran et al. in view of Moh et al. Applicant respectfully traverses the rejection.

According to the Examiner, Moh et al. teaches an apparatus and method for controlling the speed of a brushless motor, which allows for maximum torque without damaging the motor windings. The Examiner asserts that it would have been obvious to one having ordinary skill in the art to modify the method disclosed in Beran et al. with the teachings of Moh et al. regarding motor speed control.

Claim 6 depends directly from claim 1. Claims 7 and 8 depend directly from claim 6, and thus indirectly from claim 1. Therefore, claims 6-8 include all limitations of claim 1, which, at least for the reasons described previously, is patentable over Beran et al. Furthermore, Moh et al. does not teach, claim, or even suggest the steps of powering the unlocking stroke of an actuator using energy that was stored mechanically, or, alternatively, electrically, during the actuator's otherwise powered locking stroke, as recited in claim 1 of the present application. Additionally, pursuant to MPEP §706.02(j), there is no motivation or suggestion whatsoever in Beran et

al. or Moh et al. that these two references should be combined.

Accordingly, despite any disclosure in Moh et al. regarding motor speed control, Applicant respectfully asserts that claims 6-8 are patentable over Beran et al. in view of Moh et al. under 35 U.S.C. §103(a). Applicant therefore requests that the Examiner's 35 U.S.C. §103(a) rejection be withdrawn and that claims 6-8 be allowed.

VIII. Applicant's Reply to the Examiner's Rejection of Claims 17-19 under 35 U.S.C. §103(a)

The Examiner has rejected claims 17-19 under 35 U.S.C. §103(a) as being unpatentable over Beran et al. in view of Moh et al. Applicant respectfully traverses the rejection.

The Examiner's rejections of claims 17-19 are based upon the same assertion, set forth above, that it would have been obvious to modify the apparatus disclosed in Beran et al. with the teachings of Moh et al. regarding motor speed control.

Claim 17 depends directly from claim 12. Claims 18 and 19 depend directly from claim 17, and thus indirectly from claim 12. Therefore, claims 17-19 include all limitations of claim 12, which, at least for the reasons described previously, is not anticipated by Beran et al.

Furthermore, Moh et al. does not teach, claim, or even suggest a means for powering the unlocking stroke of an actuator using energy that was stored mechanically, or, alternatively, electrically, during the actuator's otherwise powered locking stroke, as recited in claim 12 of the present application. Additionally, pursuant to MPEP §706.02(j), there is no motivation or suggestion whatsoever in Beran et al. or Moh et al. that these two references should be combined.

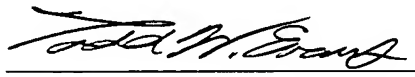
Accordingly, despite any disclosure in Moh et al. regarding motor speed control, Applicant respectfully asserts that claims 17-19 are patentable over Beran et al. in view of Moh et al. under 35 U.S.C. §103(a). Applicant therefore requests that the Examiner's 35 U.S.C. §103(a) rejection be withdrawn and that claims 17-19 be allowed.

## IX. Conclusion

Applicant respectfully submits that claims 1-3, 5-8, 12-14, and 16-19 which remain in the application are in condition for allowance and, therefore, that this

application is in condition for allowance. Reconsideration and allowance of the application are respectfully requested.

Respectfully submitted,



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